

AEROSPACE

Frontiers

NASA Glenn Research Center

Special Commemorative Issue February 2003

STS-107 Columbia

Remembering our heroes

As members of the NASA family, Glenn employees—civil servants and support service contractors—mourn the loss of the STS-107 crew who lost their lives February 1 on their way home from a 16-day mission. This commemorative issue is dedicated to showing our esteem for this heroic group of men and women.

Treasured memories . . .

"It's an exciting event when you learn—and meet in person—the mission specialist(s) who will operate the experiment you have spent so much time developing," said Project Scientist Dr. Suleyman Gokoglu in 2001 when the STS-107 crew visited Glenn.

For Gokoglu and other members of Glenn's Microgravity Science Division (MSD) who worked with the seven astronauts over the past 2 years, the loss of the Space Shuttle *Columbia* is especially acute.

Ann Over, Combustion Flight Projects Branch and project manager for the Combustion Module-2 (CM-2), explained that the STS-107 crew visited Glenn twice to train on Glenn-developed hardware. In addition, members of the MSD staff who served as project scientists and crew trainers traveled to Texas and Florida to meet

with astronauts for further training.

"I was amazed at the respect the astronauts showed to Glenn scientists and engineers while training on the hardware," Over said. "It was as if they hung on our every word, probing us with question after question so that they could ensure a flawless operation that would reap the highest technical return possible."

During the STS-107 mission, Glenn was responsible for the CM-2, which housed experiments that examined health and safety issues that affect life on Earth and in space. CM-2 comprised three individual experiments: Laminar Soot Processes, Structure of Flame Balls at Low Lewis-number, and Water Mist Fire Suppression Experiment. Glenn also managed Critical Viscosity of Xenon, which studied the



STS-107 crew members, left to right: David M. Brown, mission specialist; Rick D. Husband, mission commander; Laurel B. Clark, mission specialist; Kalpana Chawla, mission specialist; Michael P. Anderson, mission specialist; William C. McCool, shuttle pilot; and Ilan Ramon, payload specialist.

fundamental properties of xenon at its critical point, and the Space Acceleration Measurement System and Orbital Acceleration Research Experiment, which measured the minute accelerations of the shuttle as small as one-billionth of Earth's gravity.

David Urban, chief of the Microgravity Combustion Science Branch and project scientist for the Laminar Soot Processes (LSP) experiment, was one of several Glenn personnel who worked practically around the clock in NASA's Mission Control Room at Johnson Space Center during the 16-day flight.

"It was a tremendous rush seeing the astronauts—Dave Brown, Kalpana Chawla, Mike Anderson, and Ilan Ramon—conduct my experiment in space," Urban said.

In a recent press briefing, Dr. Howard Ross, former chief of Glenn's



"The bond between those who venture into the frontier of space and those who make spaceflight possible is incredibly strong."

—NASA Administrator Sean O'Keefe

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... priceless moments shared

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Microgravity Combustion Science Branch, now NASA's Acting Deputy Associate Administrator for Science in the Office of Biological and Physical Research, said that despite the loss of flight hardware, Glenn's experiments and others grounded in physical science may yield 50 percent or more of the expected results.

The MSD staff agrees that working with the crew professionally was awe inspiring, but getting to know them personally held the most value. They said that the crew visits to Glenn afforded the MSD staff and others on Lab the opportunity to share a meal and free time with the astronauts. In those festive and informal settings, the two groups—NASA's ground and space personnel—discovered common interests outside the technical arena.

In the wake of the tragedy, the Microgravity Science Division realizes the importance of sharing with one another their grief as well as memories of their special association with the STS-107 crew. Some of the members are creating photo collages for the families of the crew.

"We look forward to the release of the experiment data so that we can begin to produce the scientific papers that will serve as the crew's legacy," Urban said. ♦



Photo by Marvin Smith

C-2001-251



Above: Astronaut Michael Anderson, STS-107 payload commander, works with the Combustion Module-2 facility in the SPACEHAB Research Double Module aboard the Columbia. Left: (left to right) David Urban, LSP project scientist, Astronauts Ilan Ramon and Kalpana Chawla, and John Mishic (ANLX/7700), LSP engineering lead, discuss LSP operations using the CM-2 model during a visit to Glenn in 2001.

Employee Assistance Program aids in the healing process

Glenn's Employee Assistance Program Manager Dr. Joe Wasdovich knows it will take time for employees to get through the tragic loss of the Space Shuttle *Columbia*, STS-107. Upon the news of the accident, he and other Center health care professionals quickly scheduled a stress debriefing to offer employees self-healing information and tips to help their coworkers, family members, and friends cope.

Wasdovich related how people across the world who witnessed this critical incident share a common sense of overwhelming vulnerability, anger, and denial. He stressed that these are normal feelings and all part of the process of grieving.

"The various stages of grieving can take a toll both physically and mentally," Wasdovich explained. "However, the degree to which grief affects each person is often magnified by the individual's situations prior to the incident."

During the February 6 debriefing, Wasdovich identified unusual patterns of behavior on the physical, perceptual, cognitive, and emotional responses to stress brought on by grieving. An example of a cognitive response is someone who appears to be preoccupied or operating on autopilot. Information and data about the incident is coming in but he or she is unable or unwilling to process it and continues to be diligent as if nothing happened. He said that it is important that coworkers stand ready to be available to that person when they are ready to talk.

Wasdovich suggested that the first and most important step to coping and healing is to connect with loved ones or a significant other; second, practice a healthy lifestyle—eat well, exercise, and rest; and third, reinvest in your faith or commune with nature. As healing progresses, he also recommended practicing rational emotive thinking: I am experiencing nor-

mal reactions to an abnormal situation; I am vulnerable and human, but not helpless; I can't control everything, but I can control my response to a situation; and I did the best I could at the time.

Wasdovich asserted, "The crew of STS-107 did their best and we owe them the respect to continue to do no less."

Editor's note: Employees who desire personal counseling may contact Wasdovich at 216-433-2989. ♦

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A lasting legacy

Few of us will ever forget where we were when we heard the tragic news of the loss of the Space Shuttle *Columbia*. It was especially devastating for Glenn staff members who worked beside the STS-107 crew who trained on our experimental hardware.

This incident reminds us that spaceflight is not a routine operation and that brave men and women are truly venturing into uncharted territory. At a time like this, it's natural to focus on the tragic nature of the event and the loss of these extraordinary people. Yet their enthusiasm and selfless commitment to fulfill NASA's vision and mission serves as a shining example to each of us to pursue our highest levels of excellence.

Over the days that have followed the tragedy, many of us have shared our feelings and comforted one another through the grief we share of losing seven of our family. This affirms what Administrator Sean O'Keefe stated in his early message to employees that the bond between those who venture into the space frontier and those who make spaceflight possible is incredibly strong.

While we will continue to be deeply affected by the loss of such vital members of the NASA family, we can find great strength in the legacy they left behind. Their love and dedication to the space program is their lasting gift to us and will propel us with true conviction into the future. ♦

Cleveland-area memorial service

On February 8, Cleveland-area residents came together as a family to celebrate the lives and mourn the loss of Space Shuttle *Columbia* astronauts. Glenn and the Cuyahoga County Commissioners invited the public to the "Ceremony of Remembrance" hosted by Alex Johnson, president, Metro Campus/Cuyahoga Community College.

"... There are only a few ways that we can truly pay tribute to these seven heroic men and women. We can forge ahead in our space exploration... celebrate their courage, insatiable intellectual curiosity, pioneering spirit, and diversity... and pray for their loved ones," said Cuyahoga County Commissioner Peter Lawson Jones. "My colleague, Tim McCormack and I... represent 1.4 million Cuyahoga County residents who wish them (the astronauts) Godspeed on their final journey into the arms of their awaiting God."

Glenn Center Director Donald Campbell and a host of local dignitaries also offered their prayers, remarks, or proclamations in memory of the heroic crew. Speakers included Rabbi Richard A. Block, Rev. Paul H. Sandler, Rev. Joseph T. Hilinski, Priest Eshokkumar Bhargava, Congressman Dennis Kucinich, Brookpark Mayor Mark Elliott, Michele Gilcrest for Senator Michael DeWine, Michael Taylor for Congresswoman Stephanie Tubbs Jones, Councilman Martin Sweeney for Cleveland City Council President Frank G. Jackson, and Case Western Reserve student Orlando Antongiorgi.

The event was broadcast live over Northeast Ohio cable stations to reach a potential half million viewers.



C-2003-235

Photo by Marvin Smith

Glenn aids search and recovery

Glenn has been a willing participant in an Agencywide effort to recover clues to the STS-107/*Columbia* disaster.

In the early hours following the tragedy, Glenn's Safety and Assurance Technologies Directorate supported Headquarters' Safety and Mission Assurance (SMA) Office to establish the Process Based Mission Assurance system. The system acts as a data storage vehicle for all information and communications supporting the SMA community's STS-107 mishap investigation.



Meanwhile, members of Glenn's Aircraft Operations Office, in cooperation with Stennis Space Center, were mobilized to support reconnaissance efforts 60 miles north of Beaumont, TX. For 3 1/2 days immediately following the incident, Glenn crew—Pilots Bill Rieke and Kurt Blankenship accompanied by Bud Schutte, chief of maintenance, and Olen Reed, crew chief—flew lines covering a 40- by 15-mile area between Rosepine, LA, and Pineland, TX, equipped with an advanced multichannel, infrared scanner to locate and recover shuttle debris. Pilot Jim Demer flew on a return trip.

A team of three agents from Glenn's Inspector General Office was also deployed to search and secure debris in the Lufkin, TX, area. Glenn's news chief Lori Rachul served in Lufkin assisting the Agency and local authorities with media at recovery sites to disseminate timely information. Glenn's legal counsel Bill Sikora was detailed to Houston at Johnson Space Center, to serve as counsel to Admiral Harold Gehman, chairman of *Columbia*'s accident investigation board. Sikora is expected to travel to several other centers during the investigation.

While Glenn is committed to aiding the investigation, employees are reminded that they should follow their chain of command when receiving requests concerning the incident. ♦

Glenn pays homage . . .

"I've never felt so proud to be a NASA engineer. And given the way the entire Nation has responded to the tragedy, I'm also especially proud to simply be an American."

—Steven Bauman, 5960

"It's been on my mind pretty much every waking hour since it happened. It's helped to hear Ron Dittmore's candid and up-to-date briefings."

—Joseph Bahleda, MTC/0170

"Even though many of us in Building 54 never met these astronauts, they were part of our NASA family. We wanted and needed to do something to help their families. Hosting a light breakfast, which raised \$1,000, gave us a chance to do just that."

—Elaine Pappas, 6100

"The STS-107 crew's dedication shows us we can achieve anything. They make us want to be better. Because of this they are ours—and to lose them hurts us all."

—Shanessa Jackson, BTAS/9200



C-2003-223

Photos by Marvin Smith



C-2003-222



C-2003-244

Left to right: flags flew half-mast; the Visitor Center set up a memorial for employees and the public to share grief and support; and Glenn's Prayer Group hosted a memorial on February 4.

National Aeronautics and
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